Protecting
And Improving

OUR NATURAL ENVIRONMENT

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One of the problems faced by an increasingly urbanized society is how to keep from harming the natural environment -- and how to improve it.

The air we breath, the water we drink, the level of noise and the preservation of nature's beauty are all important factors in the quality of our daily lives.

The New Jersey Department of Transportation is involved in varying degrees with each aspect of the problem: in the construction of transit and highway facilities, in improving the comfort and convenience of bus and rail services, in increasing the safety and capacity of state roads, and in upgrading aeronautical activities.

MANY CONTRIBUTE

Many units in the Department contribute to this effort to protect and enhance the natural environment, from the early planning state of projects, through their construction, and, afterwards, in maintaining them.

Before a highway project is undertaken, the Bureau of Quality Control tests air and water quality and measures noise levels. These findings go to the Bureau of Environmental Analysis (BEA), which assesses the economic, social and environmental aspects of a planned project and considers its effects on aesthetics, wildlife and water resources. Working with other staff, BEA recommends ways to eliminate or minimize potential harm.

Although nature causes a part of air pollution, public attention has focused on efforts to reduce the amount of man-made pollution. In New Jersey, the most urbanized State, air quality is high on the list of environmental concerns.

More than a dozen different activities within the Department have sought to reduce air pollution by highway vehicles. A program to encourage car and van pooling aims at reducing the number of vehicles on the highways. A wide-ranging effort is under way to make bus and rail

transit more accessible and more attractive to lure motorists out of their automobiles.

FEWER TRUCKS NEEDED

Support for the continued operation of low density railroad freight lines has kept off our highways hundreds of trucks which otherwise would have had to carry those cargoes.

Since the amount of pollutants put into the air can be reduced with a reduction in stop-and-go driving, the Bureau of Traffic Engineering uses various methods to increase the capacity of highways and smooth the flow of traffic. These include time-sequence traffic lights, special turning lanes, jughandles for turns and parking bans on main arteries.

The BEA identifies potential air pollution problems in the early planning phase of a project. Then the Department's staff of design engineers seek alternative routes or types of construction which could reduce pollution below existing levels or below levels that would result if the project were not carried out.

EXHAUST FUMES CHECKED

Air quality is affected both in terms of health and comfort by the exhaust from the nearly 4,000 buses that circulate throughout New Jersey. The State owns about 1,600 buses, with the number expected to increase. Through the Department's Bureau of Bus Operations and Bureau of Equipment, the 520 used buses acquired in 1976 were retrofitted with fuel injectors to reduce harmful exhaust emissions, and the 866 new buses purchased that year have roof-mounted exhausts to direct fumes away from pedestrians and following automobiles. In addition, all buses are required to undergo rigid pollution tests twice a year.

The Bureau of Plant Engineering and Operation has an ongoing program for the preventive maintenance and replacement of oil burners and other equipment at all Department installations

to assure efficient operation and to reduce the amount of pollutants put into the air. At the Bureau's gasoline filling stations, which service all state government cars and trucks, modifications are being made to prevent fumes from escaping into the air while storage tanks are being filled.

NOISE, A GROWING PROBLEM

An undesirable by-product of greater mobility is the increase in noise generated by transportation vehicles, particularly along busy highways.

Possible ways to minimize noise generated by car and truck traffic are considered by the BEA in the planning of new highway construction or improvements. The Bureau also analyzes ways to reduce noise on existing highways and, working with Design staff, may recommend any of several different types of barriers to deflect or absorb highway noise.

Requests have been received for highway noise barrier studies at more than 100 locations throughout the State. When a particular type of barrier has been approved, the Department's Bureau of Surface Design prepares the design and construction plans.

Meanwhile, the Bureau of Instrumentation Services in the Division of Research and Development has two ongoing research studies on highway noise, one to evaluate the levels of truck noise in the state in order to determine the extent of reduction measures needed, and the other to evaluate the effectiveness of noise barriers after they have been erected.

The users of public transportation can look forward to quieter rides as a result of improvements in progress or being programmed. The installation of continuous welded rail is reducing the amount of track noise, and new equipment being acquired will contribute to a quieter ride for railroad passengers. Similarly, the planned purchase of more than 1,000 Advanced Design Buses will result in a marked reduction in interior noise for bus riders.

AIR OPERATIONS MONITORED

Aircraft operations can increase the volume of objectionable noise dramatically. The Division of Aeronautics licenses airports and helicopter landing areas and approves flight paths which have the least noise impact on nearby residential areas or communities.

With limited authority to regulate operations, the Division also promotes noise abatement by attempting to persuade airport operators to have pilots use the quietest angle of climb and by encouraging them to restrict the operations of very noisy type aircraft to hours acceptable to the community. The Division's Bureau of Aviation Planning has provided a model land use and zoning ordinance to local governments for the specific purpose of reducing aircraft noise impacts through appropriate land use zoning.

PROTECTING WATER PURITY

The purity of our streams, lakes and underground water is constantly threatened by the increasing needs of a mobile society. The Planning, Design, Construction, Maintenance and Administration staffs of the Department each play roles in protecting our water resources.

Over the past ten years, the Bureau of Maintenance, with stricter controls and improved mixtures, has been able to cut to a virtual minimum the amount of salts needed to clear ice and snow from state highways, thereby reducing the amount of dissolved salts running off into catch basins or onto adjacent vegetation. A new, experimental mixture offers the prospect of an even greater reduction in the amount of salt needed.

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SAFE CHEMICAL STORAGE

The need to store all highway salt under cover to prevent it from leaching into the ground and reaching underground water supplies was anticipated long ago by the Department, with the

result that five large regional storage depots have been constructed and other work is proceeding as fast as available funds permit. An elaborate oil overflow system to contain accidental oil spills has been completed at the Department's main headquarters and a required program has been completed for the safe storage of all herbicides and pesticides throughout the State.

Highway drainage systems often are designed with retention basins to accumulate silt and prevent it from clogging nearby waterways, and retention basins have become a standard feature of construction projects until new ground cover can prevent soil erosion.

LOCAL IMPACTS ASSESSED

As with its air and noise studies the BEA assesses the impact projects will have on local and regional water resources and makes recommendations for consideration by design engineers.

During the design and construction of projects, the Bureau of Landscape recommends and takes measures to reduce erosion and silting from water runoff. This includes top soiling and seeding the entire highway right of way, planting trees and, if needed, placing special mats on slopes.

"Only when man destroys the life and beauty of nature, there is outrage," wrote an English historian. Preventing the destruction of nature's visual beauty or, when that is not possible, restoring it, is a responsibility not held lightly by the Department of Transportation. It is a responsibility, however, that too often has had to contend with the forces of growth and a changing society.

How the Department seeks to meet this responsibility can be illustrated in the construction of highways. The era of massive highway building has tapered off in New Jersey, yet there still are some highways to complete and others to be improved or expanded. Taking the lead in

efforts to preserve the beauty of our natural environment are the Bureau of Surface Design and Bureau of Landscape.

SEEKING VISUAL BEAUTY

The design engineers, who have won national recognition for their work, seek to make highways -- as well as other projects -- esthetically pleasing by fitting them into the natural contours of the land as much as possible. They may design separate roadways at different levels for each direction, leave natural growth in a wide median or use other techniques to make a highway more pleasant in the eyes of drivers and more acceptable visually to those who live or work near it.

Providing advice and support for the designers are the landscape architects. They also direct the planting of trees and shrubs to restore roadsides, to screen junkyards from highways and highways from adjacent properties, to develop scenic overlooks and safety rest areas and to use plantings to soften the visual impact of sound barriers. Great numbers of trees and shrubs are planted each year as part of highway construction projects as well as many acres of grass.

The Department's many and varied efforts to preserve and enhance our natural environment could not be carried out effectively without a large measure of advice and support from the general public.

Accordingly, as a program or project is formulated and progresses, the public is asked to make comments and suggestions at meetings and hearings arranged by the Office of Community Involvement or other Departmental units. Discussions also are held with elected officials and with county and local agencies and organizations having a particular interest in a project or its environmental aspects.

In working to improve the quality of life in general, we must also work to protect and improve our natural environment while at the same time improving transportation. It is a task that

calls for contributions from many disciplines and the cooperation of many and diverse interests.

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Questions concerning the Department's environmental activities may be directed to the Office of Community Involvement, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, N.J., 08625.

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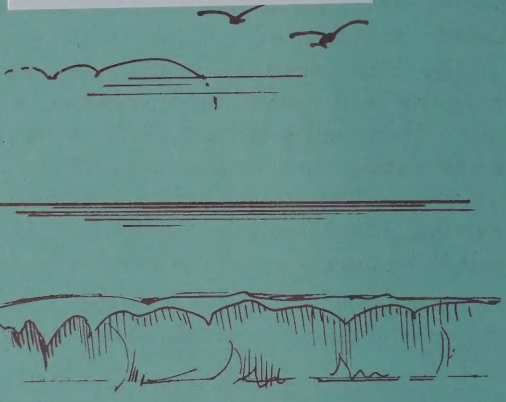

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